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Director of
Central
Intelligence

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# Prospects for Soviet Military Technology and Research and Development

**National Intelligence Estimate**
**Memorandum to Holder**

~~Secret~~

*NIE 11-12-83*
*April 1985*

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# MEMORANDUM TO HOLDERS OF NIE 11-12-83

# PROSPECTS FOR SOVIET MILITARY TECHOLOGY AND RESEARCH AND DEVELOPMENT

Information available as of 3 April 1985 was used in the preparation of this Estimate, which was approved by the National Foreign Intelligence Board on that date.



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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS.

*The following intelligence organizations participated in the preparation of the Estimate:*

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organizations of the Departments of State and Energy.

*Also Participating:*

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force



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## SCOPE NOTE

NIE 11-12-83, *Prospects for Soviet Military Technology and Research and Development*, was the second in a now-established series of NIEs on the subject. At the initiative of the Director of the Defense Intelligence Agency, the Director of Central Intelligence agreed that a Memorandum to Holders of NIE 11-12-83 would be prepared to reexamine and clarify a statement in the Estimate that concerned technology transfer to the Soviet Union and which could be misinterpreted. We consider this Memorandum an interim report, with the recognition that still more analysis is needed. The entire issue of the role, importance, and implications of technology transfer in Soviet technology development and weapon system capabilities is being reanalyzed and updated for inclusion in the next issuance (NIE 11-12-85) in the Estimate series.



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## DISCUSSION

1. In NIE 11-12-83, the Intelligence Community estimated that the Soviet Union has a large military research and development program that is capable of steady progress in key military technology areas; that there are both significant strengths and weaknesses in Soviet military technology relative to the West; that the weaknesses are most evident in the areas of microelectronics, computers, and automation; and that the Soviets had to turn to Western technology to compensate for their deficiencies and would continue to do so. In discussing the Soviet technological deficiencies, the Estimate states that the Soviets' "practice of heavily adopting Western ideas and designs will continue to reinforce their position of technological inferiority to and dependence on the West."

2. Concern now has been expressed that readers of the Estimate may interpret that statement as suggesting that the United States could foster a permanent position of technological inferiority in the Soviet Union by supporting the continuing transfer of militarily significant technologies to the Soviets. We have reviewed the pertinent sections of the Estimate and believe that this interpretation is unwarranted but understand how the statement, if taken out of context, could be misinterpreted.

3. We believe that the Soviet weapons program in the next decade will be supported by a continued large resource allocation for military research and development. The scope and magnitude of this program, the Soviets' willingness to exact sacrifices from their civilian sector, their growing indigenous technological capabilities, and their practice of heavily adopting Western technological ideas and designs will help compensate for systemic inefficiencies and assist them in narrowing the US lead in military technologies and to develop increasingly complex weapon systems.

4. We believe that Western technology is extremely valuable to the Soviets. Their exploitation of Western technology helps reduce the effects of their deficiencies and enables them to stay close enough to the West technologically to maintain the adequacy of their military systems. We do not believe that the systemic factors underlying Soviet technological deficiencies will change significantly over the next decade. Accordingly, it is our judgment that continued success in acquiring Western technology will be essential to Soviet efforts to maintain military capabilities relative to the West.

5. If the transfer of technology to the Soviets were to cease in areas where they are deficient, the result would be a reallocation of their R&D resources to these areas in an attempt to make up for the loss of Western technology. However, shifting resources to compensate for these losses would not be sufficient in some areas, and the Soviets either would not gain or would fall further behind. Without continued access to Western technology, the Soviets would find it even more difficult to compete with the United States.

6. Extensive exploitation of Western technology brings both risks and benefits to the Soviets. The main risk is that technology supplies—concepts, designs, and hardware—are subject to some disruptions through embargoes or other restrictions. Dependence that serves to remove the necessity of relying exclusively on indigenous capabilities may inhibit their development. We believe, however, that the Soviets find these costs quite acceptable in view of the substantial benefits they derive from exploiting Western technologies and that major acquisition efforts therefore will continue. There will almost certainly be continued Soviet dependence on Western innovation for leadership and direction in many areas of advanced technology. This dependence is particularly significant in microelectronics, and extends to avionics, precision-guided munitions, communications, robotics, computers, and production technologies.

7. As a result of their practice of planned modernization of military systems, the Soviets can field Western technology in a great variety of sophisticated and effective weapons in a short period of time, improve their military capabilities, and concentrate resources on the development of advanced weapons. Western technology has also allowed them to field entirely new weapon systems. Inputs of Western technology subsidize the continuing growth in and efficient use of Soviet R&D resources. Technology transfer forces the West to devote even greater resources to offset gains in Soviet military technology and capabilities.



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8. Soviet technological lags and deficiencies do not necessarily translate into inadequate military systems capabilities. The Soviets' persistent modernization efforts help them to reduce the effects. They have been able, for example, to move computer technology into deployed systems on the average of six years faster than the United States, enabling them to offset partially the US technological lead in computers. Similarly, frequent modernization of fielded weapon systems helps the Soviets to offset the effects of the attendant technological lags that result from reliance or dependence on Western technology.

9. Acquisition of Western technology has been essential to many of the Soviets' military gains and will continue to be important to them. On the other hand, they have successfully pursued some independent R&D paths in areas such as storable liquid missile fuels and nuclear weapon designs. The Soviet Union currently leads the United States in several key technologies, including chemical warfare and some aspects of millimeter-wave and sensor technology. Soviet advanced research is also strong in directed-energy technologies and, indeed, leads in some. Nevertheless, in most areas the Soviets have followed the Western lead in technological innovation.

10. Significantly, the effects of dependence could be even more important in the 1990s than they are today. The effects of technology dependence on the present military balance are mitigated by the essentially mature technological base the USSR has already developed. The next decade is less certain for the Soviets, however, because of rapid technological development in the West.



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